IBM Corporation - East Fishkill

EPA ID Number: NYD000707901

Other (Former) Names of Site

None

Site Description

IBM Corporation - East Fishkill facility is located in Hopewell Junction, bordered on the north by U.S. Route 52, to the east by County Highway 27, and to the south by U.S. Route 84. There is an unnamed creek next to the surrounding open fields to the west. The 592-acre facility is divided into the East and West Complexes, which are separated by Gildersleeve Brook, John Jay High School and an electrical transmission line. The East Complex covers 430 acres and is used for manufacturing of semiconductor and electronic computing equipment. The West Complex is used for research and development operations and covers 162 acres.

Groundwater beneath the West Complex is monitored as part of the site-wide groundwater monitoring program, and to date there has been no evidence of contamination at or above risk-based standards. At the East Complex, IBM conducted several remedial investigations that detected elevated levels of contaminants in both the soil and groundwater.

Site Responsibility and Legal Instrument

The Resource Conservation and Recovery Act (RCRA) New York State Part 373 Permit regulates the storage and management of hazardous waste in containers, the implementation of interim corrective measures (ICMs) for groundwater, and the operation of a groundwater monitoring network used to assess the performance of the ICMs. The ICMs are being enhanced to be adopted as final measures.

Permit Status

The RCRA NYS Part 373 Permit was issued on 9/29/1995 and expires on 09/29/2005.

Potential Threats and Contaminants

Chlorinated and non-chlorinated volatile organic constituents exceeding State and Federal standards have been detected in the unsaturated soils and the groundwater at the East Complex, through a groundwater-monitoring program instituted at the site in 1978. Four areas (A, B, C and D) of elevated concentrations of chlorinated organic chemicals were identified:

- The Area A plume (principally tetrachloroethene [PCE]), is located in the northeast portion of the East Complex and underlies all or parts of buildings 303, 308, 309, 310, 316, 385 and 386.

  The Area A plume is believed to be associated with past practices at the Building 309 tank farm. During the 1980s, this water was treated with a combination of air stripping and carbon-adsorption. This remedial system was activated again in January 2000 due to the high concentrations of PCE found during the groundwater monitoring in 2000.

- The Area B plume is located near the east-central border of the East Complex.

  Contamination in this area, principally methylene chloride and/or tetrachloroethene, is associated with fire training operations held in the late 1960s. This treatment system was shut down after the 1980s, in response to a decline in groundwater contaminant concentrations.

- The Area C plume is in the southeast part of the East Complex, including the area underlying buildings 330C, 335 and 336, the area between these buildings and the eastern border of the facility.

  The source of the contamination is reported to have been the construction landfills and the former drainage system in Building 330C. Contaminants consist of chlorinated organic solvents, principally tetrachloroethene. Remediation in this area has included removal of the landfills and continuous pumping and treating of the groundwater at Pumping Well 7.

- The Area D plume is located in the northwest part of the East Complex, underlying the wastewater treatment plant at Building 325.

  Contamination was first detected at this site in 1979. Contamination found in Area D, mainly tetrachloroethene, resulted from fire training operations that occurred during the mid-1970s. Contamination here is reported to be limited to the upper aquifer. This area is under active remediation by pumping and carbon adsorption.

Although a bedrock structure underlies the entire facility, only the Area A plume and a portion of the Area B plume (Buildings B330 and B333) have impacted the bedrock aquifer.

Sampling of wells along the perimeter of the East Complex in 1980 detected the presence of organic contaminants at the perimeter. Two separate studies of off-site groundwater contamination have been conducted by IBM. In 1981 and 1982, residential wells were sampled. Organic solvents were detected at five homes and carbon adsorption systems installed in those wells. It is not clear that IBM is the source of this off-site contamination because the groundwater from the site is not moving in the direction of these homes; additionally, there are several other industrial contributors to

the contamination which are upgradient to the impacted homes.

Potential Threats From Contamination

Groundwater. At this facility, contaminated groundwater is being contained within the boundaries of the facility. IBM pumps and treats groundwater from the on-site deep bedrock production well system, thus preventing off-site migration. The treated water is currently utilized for potable water at the IBM facility. Soil. Since the site is secured by adequate fencing and 24-hour surveillance, neither trespassers nor facility workers are expected to come into contact with contaminated soils. All contaminated soils are covered by clay and liners. Air. Indoor air monitoring is carried out routinely in all manufacturing buildings located on site, to protect its workers within the buildings. There is no evidence of any threat from air contamination to off-site residents.

Workers having the potential to come into direct contact with contaminants in any media are protected by following an appropriate health and safety plan.

Cleanup Approach and Progress

IBM has implemented a number of remedial actions:

- Removal of all underground solvent storage tank systems and their surrounding contaminated soil;
- Closing all underground solvent-conveying piping systems and most of the wastewater lines, replacing them with above-ground piping. Remaining underground lines were doubled-lined;
- Removal of the entire hazardous waste landfill down to bedrock, and disposing the contents off-site;
- Removal of the solid waste stored at the Southeast Quadrant land-based storage area;
- Closure of the construction debris landfill by the placement of an impermeable clay and vegetation layer;
- Closure of a silicon-containing surface impoundment, capping it with a cover made of reinforced cement;
- Removal of contaminated soil from under buildings and fire training areas;
- Implementation of six separate pump-and-treat groundwater treatment systems;
- Implementation of an extensive groundwater monitoring network to measure the performance of the treatment systems to clean up and control the migration of contaminated groundwater.

The current Interim Corrective Measure program, which is being enhanced to become the final remedial measure at this site, is addressing contamination in areas A, B, D, Building 320, Building 330, Building 322, the Southeast Quadrant, and the deeper bedrock. The remediation of Area C has been completed and is currently being monitored. There is no evidence of surface water or sediment impacts.

In 2001, EPA made a positive Groundwater Environmental Indicator determination for this facility indicating that migration of contaminated groundwater is under control. This determination was based upon:

- The monitoring to date at this site indicate that contaminant levels in groundwater at the perimeter of the site are currently approaching maximum contaminant levels. This indicates that the contaminant levels are decreasing and that hydraulic control of the plume is being attained.

- IBM conducts monthly sampling of 165 locations and quarterly groundwater elevation measurements of 387 wells to confirm on-site hydraulic control and containment of the contaminated groundwater. Also, monthly monitoring of surface waters indicates that volatile organic compounds (VOCs) are below State and Federal standards, therefore, there is no off-site migration of VOC-contaminated groundwater at this time.

A positive Human Exposure Environmental Indicator determination was made in 2002 because there were no unacceptable human exposures to any contaminants above action levels. Air and soil monitoring have been performed by the facility to confirm that unacceptable threats to human health from actual exposures to contamination are presently not occurring.

Site Repository

Copies of supporting technical documents and correspondence cited in this site fact sheet are available for public review at:

New York State Department of Environmental Conservation
Bureau of Radiation and Hazardous Site Management
Division of Solid & Hazardous Materials
625 Broadway, 8th Floor
Albany, New York 12233-7251